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NATIONAL VETERINARY MEDICAL ASSOCIATION

PRESIDENT'S NEW YEAR MESSAGE TO MEMBERS

To All Members of the National Veterinary Medical Association

THE year 1942 begins somewhat more hopefully than that which has just ended, despite the great extension of the War in its closing days. After months of effort a catastrophic situation has been converted by the united will of the Nation into one in which, by further united action and efficient personal service, the overthrow of the forces of aggression must inevitably be achieved. The credit for this change must be given partially to the insatiable desire of the enemy for further conquests but mainly to the effective co-operation which has now been established among the free races of the world. Our smaller professional sphere is equally lit by bright hopes for the future, but for the moment their full realisation seems distant, partly because effective co-operation has not yet been established in the wider world of animal health.

Some effort has been made to assist directly in the nation's defence and in co-operation with other bodies interested in animal welfare the profession has been largely responsible for the development and maintenance of a nation-wide organisation for dealing with animal suffering arising from air raids. This organisation, despite many grave difficulties, has so far carried out its duties reasonably well. But in a struggle where the production of foodstuffs is so important most of us have felt that this service is not enough, for we had hoped that the profession would be organised on a national scale for the control of disease among farm stock so that an increase in the amount of available meat and milk might be achieved. Much of the Association's effort in the past two years has, in fact, been devoted to furthering this object. As a first step a scheme for the control of certain diseases of dairy stock has been developed in agreement with the Animal Health Division of the Ministry of Agriculture and Fisheries and the National Farmers' Union, but unfortunately difficulties over which the profession has no control have temporarily delayed its inauguration. Nevertheless, as a direct result of the promulgation of this scheme considerable publicity has been accorded to the part which the veterinary surgeon can, if given the opportunity, play in preventive medicine on the farm. This publicity has had good educational value both within the profession itself and among the farming fraternity, and although the agreed scheme has not actually come into operation many veterinary surgeons are already being approached much more frequently than formerly by their clients for advice on preventive medicine and on pregnancy diagnosis of dairy cattle.

As a beginning perhaps some satisfaction may be felt at these early results, but it is evident that only the fringe has been touched of the major problem which confronts us as a profession, namely, how we can best be organised to give maximum service to the animal industry of the country. It is clear that the profession must look further ahead than the immediate War situation: it is, in fact, imperative that a long-term policy embracing the *whole* profession be carefully considered and adequately planned without undue delay. Such a long-term policy will inevitably be concerned more particularly with health and disease questions affecting animals of economic value and the proper supervision of foodstuffs of animal origin, but the profession's part in the welfare of household animals must not be neglected. Few will gainsay the fact that neither the farmer nor the citizen has in the past appreciated the rôle of the veterinary surgeon in the economy of the Nation. This lack of appreciation arises partly from a proper professional reticence, partly from a lack of opportunity offered to the profession owing to the ready assumption by others of the majority of the comparatively few positions available on official councils and committees as adviser on questions of animal health and disease, and partly, let us admit it, from an occasional opportunity missed by ourselves. Much remains to be done before this ignorance will be dispelled and sympathetic appreciation established in its place.

Professional reticence can be partially overcome by the careful preparation and subsequent publication of reports upon veterinary tasks and problems, provided the reports give a reasonable and comprehensive presentation of available knowledge. Several such reports* have already been prepared in recent years by the

* Small-animal Euthanasia (1936).
The Veterinary Profession and its Organisation for the Control of Animal Diseases (1937).
Handbook on Poultry Diseases (1937).
The Colonial Veterinary Services: Memorandum presented by deputation to the Secretary of State for the Colonies (1939).
"The Urgent Need for the Supervision of Food Animals, Carcases and Carcase By-Products": Memorandum to the Ministry of Food (1940).
Diseases of Farm Livestock—Section I: Some Diseases of Cattle (1940).

Association, and there is little doubt that the interests of the profession have been advanced thereby. But the effect of the reports themselves should be balanced and extended by the proper presentation of considered veterinary views to individuals and to groups such as Government Departments, Committees and allied associations interested in animal health and disease. In order to secure thorough consideration of views propounded a spirit of mutual trust and sympathy must prevail, for without this true co-operation cannot exist. Besides considering patiently opposing opinions, an endeavour must be made to appreciate the factors influencing their formation. Indeed, an insistence upon the proper examination of one's own views implies a readiness to consider thoroughly the differing views of others. The exercise of patience is generally necessary to carry conviction.

Unfortunately a spirit of mutual trust and sympathy has not always lubricated the relationships of the Ministry of Agriculture and the National Veterinary Medical Association, despite the realisation that the future of the one is inevitably bound up with that of the other. It will be appreciated that many members of the profession, unable to feel certain that the practitioner's position was to be maintained, have regarded with apprehension the continued growth of the veterinary work undertaken by the Ministry, while certain officials of the latter have occasionally been doubtful of the profession's desire to collaborate in view of the adverse criticism of departmental projects at times put forward by the Association. For our part we would emphasise the genuine determination of the Association to collaborate fully with the Animal Health Division in its tasks of securing a higher level of animal health, a more efficient control of animal disease, and a greatly improved supply of foodstuffs of animal origin. It is to be hoped that the consultations established in recent years between the Department and the Association will be still further extended. Unity of purpose not infrequently arises out of patient critical discussion.

For its part, in order to assist more effectively in such future consultations, the Association is making a serious examination of various aspects of veterinary work with a view to evolving a plan of organisation likely to secure the maximum benefit to the Nation of the services which the profession has to offer. But such corporate action is not in itself enough, for collective advancement depends largely upon the efficiency of the service given by individual members, whether this service be given to personal clients, to government departments or solely to the advancement of knowledge, whether through teaching or research. Sound education, efficient personal service, a will to co-operate for the general good and a well-thought-out plan for the future are the surest foundations for professional advancement. My new year's message then, in sum, is to invite each member of the profession to assume his full responsibility in securing this advancement.

In expressing my best wishes for the coming year to all my colleagues in the Association, I would send a particular greeting, as chairman of the Committee on Overseas Services, not only to those members serving abroad but to our veterinary colleagues in the British Commonwealth of Nations and in all allied countries, especially those in the U.S.A. and the U.S.S.R. May God grant us Peace in 1942.

W R Wooldridge.

A REQUEST ON BEHALF OF POLISH VETERINARY OFFICERS IN GREAT BRITAIN

The Secretary of the R.C.V.S. has received the following letter which he asks us to publish, in the hope that some members of the profession may be willing to respond to the request made.

Polish Army Veterinary Section,
56, George Street,
Edinburgh.
December 10th, 1941.
Ref.: L.dz.183/41.

F. Bullock, Esq.,
R.C.V.S.,
18, Victoria Avenue,
Harrogate.

In the Polish Army in Great Britain there are a number of veterinary surgeons who are engaged in duties which have no relation to their profession.

They are allowed three weeks holiday each year, and the Polish Army Veterinary Section would be glad to know whether it would be possible to arrange for part of this time to be spent with a good country practitioner. The Veterinary Officers concerned would be very grateful for the experience they would be able to gain in this way, and it would keep them up to date in their profession.

We do not wish that any arrangements which it may be possible to make should in any way be detrimental to any veterinary surgeon in practice or to any veterinary student.

We suggest that at the outset only one or two of our section should be allocated to one British veterinary surgeon.

In anticipation of your co-operation and favourable consideration,

I am,
Yours faithfully,
(Sgd.) (Dr.) Wrocenski Stanislaw,
Colonel,
Chief of the Polish Army
Veterinary Section.

We would request practitioners who are able to render this service to notify the Secretary of the Royal College of Veterinary Surgeons accordingly.

Rickettsia Infection of Dogs

J. CARMICHAEL AND R. N. T.-W.-FIENNES
(*From Veterinary Research Laboratory, Entebbe, Uganda*)

Historical.

Donatien and Lestoquard (1935, 1936, 1937 and 1938) have published studies of a disease of dogs associated with the appearance of certain bodies in the monocytes of the blood; they determined these bodies to be Rickettsia and gave them the name of *Rickettsia canis*. They are associated with a very definite syndrome and the disease has since been reported from many different countries.

Danks (1937) reported the disease from Kenya; Neitz and Thomas (1938) from South Africa; one of us (J. C. 1939) from Uganda; Malbrant (1939) from the French Congo; and Alexander and Mason (1939) describe the isolation of a Rickettsia from the blood of a dog in South Africa. Richardson (1940) summarises some of the literature, dealing with Rickettsial infections of animals.

The present paper is intended to draw attention to certain aspects of diagnosis and treatment, which have become apparent during an investigation carried out at this laboratory and during the routine treatment of animals at the dispensary.

Diagnosis and Treatment of Rickettsia Infection of Dogs

The Syndrome

Canine tick typhus takes three forms:—

1. *Cutaneous Form*

Skin lesions are not invariably present, but when they occur they are of two types. The first may be found at the point of attachment of a tick. It is a circumscribed, circular, necrotic area, 5 to 7 mm. in diameter and of a purplish colour. The tick may or may not be found adherent to the skin over the lesion. The second is more commonly encountered and is of an erythemato-pustular type, most clearly seen in unpigmented areas of the axilla and groin. It may be accompanied by marked general symptoms, but these may be absent. Often the only general signs are inappetence and digestive disturbance, unaccompanied by fever. The blood, however, shows an increase of monocytes and the presence of Rickettsia. In such a case, the skin lesion is resistant to all forms of local and dietary treatment, but clears rapidly when treatment for Rickettsia is instituted.

2. *Septicaemic Form*

This is the commonest form of the disease. The temperature is very high, 103° F. to 106° F. or more, and may remain elevated for a week, during which time death may occur. After a week, it usually falls, but it remains fluctuating and abnormally high, sometimes for weeks on end. Cases differ in severity; there may be vomiting, gastritis, extreme emaciation, and often a brown deposit on the teeth. The breath is always foetid. The mucous membranes are injected, and the gums develop a characteristic purplish colour, which once recognised will always give an indication of the disease, and is in marked contrast to the anaemic appearance of the gums in cases of Babesia infection. If, however, there is a mixed infection of Babesia and Rickettsia, the mucous membranes show the typical appearance of Babesia infection.

There may be a mucoid or muco-purulent discharge from the eyes. The pulse is rapid, hard and thready. Respirations are thoracic in type and the superficial lymphatic glands are enlarged. Palpation of the abdomen reveals enlargement of the spleen, unaccompanied by pain; but there is often considerable discomfort over the bladder region. Urinary examination reveals the presence of a few casts and numerous cells of transitional epithelium. Micturition is frequent and unaccompanied by pain, while the urine may be small in amount.

Palpation may reveal some pain over the loins or thorax. This indicates a degree of nervous involvement and it is probably due to increased pressure of cerebro-spinal fluid, such as occurs in cases of classical human typhus.

3. *Nervous Form*

Malbrant (1939) describes a nervous form of the disease with hysteria and convulsions. These have not so far been encountered here. The nervous form usually accompanies or follows infection of the septicaemic type. Sometimes, however, a dog may merely be noticed weak on his fore or hind limbs or the gait may be altered; there may also be inability to jump on to a chair or into a car, or pain may be evidenced when jumping down from a moderate height.

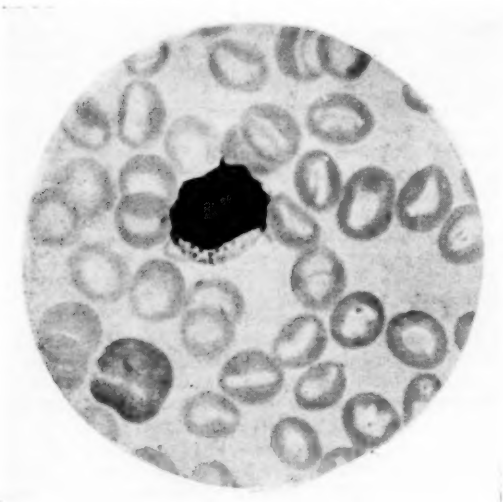
A very definite weakness of the hind limbs and a slouching gait are very frequently encountered, accompanying the septicaemic form. In severe cases the nervous involvement may lead to a partial paraplegia, in which control of the nerves of the bladder and rectum is also lost. This is an unfortunate sequel, which appears to be incurable.

Diagnosis

Diagnosis from Blood Examination

A dog, which has suffered from Tick typhus, may harbour the parasite in the blood for some months after apparent recovery from the disease. It is, therefore, essential that the clinical signs be taken into account when making a diagnosis, since the presence of Rickettsia need not necessarily indicate that they are causing active symptoms.

The affected cells are the monocytes. These occasionally contain granules or ingested particles of bacteria which might be mistaken for Rickettsia. Slides are best stained with Giemsa stain, when Rickettsia appear in the cytoplasm as coccoid or bacilliform bodies, stained a characteristic crimson colour; the colour is quite different from that of eosinophilic granules. The bacilliform bodies are small and usually arranged in clumps, sometimes in projections of the cytoplasm having the appearance of pseudopodia; they may be very minute or about the size of a coliform bacillus. They may or may not be found together with coccoid forms. The coccoid forms also vary in size, but are usually larger than the bacilliform bodies; they occur round the periphery of the cell, singly or in groups, and vary in size within a single cell; they are irregularly arranged in the cytoplasm.



X 1500.

Photomicrograph showing *Rickettsia canis* in a monocyte of the blood of an infected dog.

During the first four days of the temperature rise, it is often difficult to find Rickettsia corresponding to the classical type. A negative slide during this period should not rule out a diagnosis of typhus. After this period little difficulty is usually encountered. In the early stages, however, the blood platelets should be examined since they often appear to be increased in number, occurring in groups of four or more and packed with crimson-staining bacilliform bodies, which appear to us to be Rickettsia, and which have not been seen in the blood of normal dogs.

In assessing the significance of appearances in a slide, the presence of bacilliform bodies gives a definite positive diagnosis, and they should be sought for thoroughly. The presence of coccoid forms may usually be taken as an indication of infection; but there is a danger of mistaking ingested foreign bodies for Rickettsia, unless the bacilliform parasites are seen. For the present the existence of bacilliform bodies in the platelets is regarded as doubtfully positive, but it is believed that their presence will, after further experience, prove to be diagnostic.

About the 13th day of infection the monocytes are enormously increased and appear in atypical forms often resembling lymphocytes with a simple round nucleus. Such a blood slide will give the impression of being packed with white cells. This in itself will immediately raise the suspicion of a typhus infection. Rickettsia are not necessarily numerous in such a slide, but can usually be found and definitely indicate an infection of long standing. In cases of early infection the monocytes are normal in appearance with a few immature forms with darkly staining cytoplasm, suggesting an early stage. The eosinophils disappear almost completely during the course of the disease, and their presence also indicates an early stage.

During the course of the disease the numbers of Rickettsia fluctuate from day to day, but such variations give no indication either of the stage of the disease or of its severity.

The appearances in the blood may seem at first sight to be complicated, but with experience and a little trouble, no difficulty will be encountered; in addition, slide examination gives a valuable clue to the stage of the disease.

Weil-Felix Reaction

A certain number of agglutination tests have been carried out on the serum of affected dogs against proteus X19, X2 and XK. During the course of the disease, there is a very slight rise of titre against X19 and XK, which falls as the disease subsides, but there is no agglutination of X2. The rise of titre has not yet been found sufficiently marked to warrant the adoption of this method of diagnosis, which has been discarded.

Treatment

Sulphonamide preparations are very effective in cases of Rickettsia infection of dogs. Sulphapyridine is probably more effective than proseptasine, but either drug may be used in the same manner and the same dose. One gramme should be given daily for each 8 lb. of body weight for five days; the drug should be administered four times daily.

The temperature, which must be taken every morning, should fall on the first day following treatment and should be normal in three to four days. If the temperature does not return to normal the dose must be increased progressively, until a response is obtained. It is as well at the same time to examine further blood slides in order to ascertain that there is no intercurrent Babesia infection. After the treatment, a relapse may sometimes occur, in which case a second course should be instituted without delay.

During treatment with sulphonamides, no purges of any sort may be given. Precautions with regard to eggs and other sulphur-containing foods have now been shown to be unnecessary. The sulphonamides have a highly toxic action on the heart, and undue strain of any sort is contraindicated; the dog should be kept as quiet as possible during the treatment. However, no cases of toxic action have occurred here and the dogs appear to be extremely tolerant of these drugs.

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Attention was drawn, at a meeting of Canterbury F.U., to a case in which a milk producer was convicted and fined in respect of deficient milk sold by a retailer, who collected from a number of farms and told the authorities that the milk in question came from that particular farm. It was complained that under the 1938 Act the procedure gave the farmer no chance of protest.

CLINICAL COMMUNICATIONS

Mercurial Poisoning in a Horse as a Result of Eating Treated Oats

C. M. EDWARDS, B.V.Sc., M.R.C.V.S.,
Llandyssul, Cards.

Subject.—A bay Shire gelding, about nine years old and 16 hands high.

History.—The day before I was summoned to attend this case the horse was off its food and salivating profusely. The bowels were stated to have been "very loose." As an afterthought, the farmer volunteered the information that three days previously the animal had broken loose and had eaten a quantity of oats which had been treated with a proprietary mercurial seed dressing. He did not, however, attach any importance to this as the quantity eaten "could not have been more than a quarter of a bucketful."

Examination.—When first seen the animal was already in a serious condition. On examination, the symptoms almost represented a "textbook" description of advanced mercury poisoning. There was anorexia, extreme depression, and a dejected appearance with the head drooping, and an unsteady gait. Respirations were increased, the pulse was rapid, weak and thready, and the temperature was 104° F. Gangrene of the lungs was evident from the foetid, sweetish odour of the breath, coupled with a bloody, muco-purulent nasal discharge.

Treatment.—This consisted of the administration by stomach tube of 12 oz. magnesium sulphate in a gallon of warm water, and 10 c.c. ether subcutaneously as a stimulant. Little hope of recovery was given, owing to the very advanced nature of the condition.

This grave prognosis was well justified, for the animal was dead by the following morning.

Discussion.—It is interesting to note the very small quantity of treated oats required to poison so large an animal. It is therefore important for farmers to realise how dangerous to stock such grain can be. Apparently several farmers store treated seed alongside grain used for feeding. Fowls are known to have died as a result of being fed on mercurialised wheat by undiscriminating poultry keepers, and also after scratching up grain which has been sown.

May I venture to suggest that, in these days when farm stock is of such enormous national importance, it is the duty of the veterinary profession to warn stock owners of the potential dangers of mercury dressed seed which is at present in such widespread use.

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A Case of Double Cryptorchidism treated successfully by Antuitrin "S"

S. H. ADAMS, M.R.C.V.S.,
and
A. HECTOR, M.R.C.V.S.,
Ponthafren, Newtown, Montgomeryshire

Subject.—A two-year-old Shire colt.

On November 9th, 1940, we were approached by the owner of the colt, who wished to have him castrated. On examination, however, it was found that neither testicle could be detected, either in the scrotum or in the canal. It was decided to try the effect of Antuitrin "S."

At the suggestion of the suppliers—Messrs. Parke, Davis & Co.—500 rat units, *i.e.*, 1 c.c., were injected intravenously at weekly intervals for five weeks commencing on November 16th, 1940.

On completion of the series of injections no change could be detected in the condition of the colt. At the end of December the owner again reported no change. Towards the end of May, however, the owner reported that he thought the horse was now ready for castration, and on examination it was found that one testicle had descended well into the scrotum and was somewhat enlarged, while the other smaller one could be easily felt a little higher in the groin.

On June 9th, 1941, the horse was cast and chloroformed and both testicles were removed without difficulty. Recovery was uneventful.

HEAVY HORSE BREEDING: GRANTS FOR SCOTLAND RENEWED

The Department of Agriculture for Scotland have made the following announcement on the subject of renewal of grants to approved societies for the breeding of heavy horses:—

"The Department of Agriculture for Scotland will, for the encouragement of heavy horse breeding, be prepared during the forthcoming year to operate with a limited number of horse-breeding societies in Scotland, which comply with the regulations and requirements and have been accepted and placed on the Department's list of approved societies.

"Assistance will take the form of a direct grant to societies which hire the approved stallions and, in addition, assistance will also be offered through societies to small farmer members to enable them to have their mares served by approved stallions.

"All stallions travelling in the district of the society will not be eligible to earn the Department's grants but only those approved by the Department.

"Full particulars of the grants available, together with the conditions of the scheme, will be announced as soon as possible. Meantime societies which desire to participate under the scheme may submit a copy of their conditions and rules, together with a copy of their last manual, abstract of accounts and balance sheet, to the Secretary, Department of Agriculture, St. Andrew's House, Edinburgh, 1."

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Weekly Wisdom

Above all, we must resolutely face the need to master those factors which are destructive of social unity—gross inequalities of opportunity and wealth, the various injustices of privilege, and the irresponsible use by anyone who can grasp it of economic power. This process is in train. War, taxation, rationing, the responsibilities of military and civilian service and the re-discovery of a sense of neighbourhood are already working an English-style revolution. The process must be guided by radical changes in education, industry, and public administration to ensure that the men and women who fill the key positions in British life are the most worthy and the ablest. The issues of modern life are too tremendous to be entrusted to anyone else.—"The Forum," *Observer*, December 7th.

ANNOTATION

The Physiology of Birth, as illustrated by Barcroft's Recent Experiments upon Sheep

The change in the environment of the foetus at birth is no less complete and abrupt than that which would occur were a fish removed from the sea and made to live upon land; yet, within a few minutes, the newly-born animal is able to stand and to suckle its mother. The physiological mechanisms which enable the foetus to adapt itself to this new order have received scant attention until the last ten years, and they are surely as important as the earlier studies of the morphological relationships of mother and foetus. The outstanding contributions towards the solution of the physiological problems have come from Cambridge, and Sir Joseph Barcroft* has recently summarised the work of his school on some aspects of foetal life, with their bearing on the phenomena of birth. The subject is dealt with under four heads.

The Change in Atmosphere

The air surrounding the new-born animal is both the medium in contact with the skin and the medium for respiratory exchange. Before birth the medium in contact with the skin is the amniotic fluid, and the medium for respiratory exchange the maternal blood in the placenta. Since direct comparison of the respiratory exchange, before and after birth, is not convenient, the yardstick adopted for estimation of the satisfaction of the requirements of the foetus is the degree of oxygenation of the carotid blood, and the foetus can be regarded as in equilibrium with a hypothetical " atmosphere " while in the uterus.

The amniotic fluid is, in general, similar to the body fluids of the foetus, with the result that there is little stimulation of the sensory endings in the skin. Contact with the outside air, with the concomitant fall in temperature, results in a battery of impulses in the sensory nerves, and reflex activity of the motor nerves to the musculature in general. This activity is responsible for the establishing of muscle tone, and conversely, the quiescence *in utero* is due to the absence of sensory stimuli of any considerable dimension.

The carotid arterial blood of the full-term foetus is only half-saturated with oxygen. Such an oxygen supply is adequate only for existence, reflexes of a low order, and random movement—in fact, for purely basal activity. The low oxygen level is brought about by the disparity in the growth rate of placenta and foetus, for, in the sheep, the placenta is at the peak of its growth at the 100th day of gestation, while in the next 47 days (that is, up to full term) the weight of the foetus increases by about eight times. There are two methods by which an effort is made to increase the oxygen available to the foetus: (1) An increase in the rate of blood flow through the placenta. From the 76th to the 138th day, when the peak is reached, there is a fourfold increase in the pressure in the umbilical artery; (2) a sharp rise in the haemoglobin content of the foetal blood in the last fortnight. Nevertheless, the decreasing oxygenation of the foetal blood is of an order which would be extremely serious in post-natal life. An analogy can be drawn between the foetus and an adult subjected to a gradually increasing altitude. At the 80th day the oxygenation of the blood is similar to that of a man at 15,000 ft., while at full-term, the corresponding height is 30,000 ft. or even more. Within four or five minutes of birth, the oxygenation of the blood is the same as that of a man at normal level. This represents a very rapid transition from the " black out " experienced in the sub-stratosphere!

Transfer of Blood from the Placenta at Birth

The total blood volume of the foetus is enhanced at the time of birth by the transference of blood from the placental bed. Of the 100 to 150 c.c. of blood in the placenta just before birth, about 80 per cent. is driven into the foetal circulation by contraction of the placental vessels. The fate of this blood is even more remarkable, for 10 per cent. of the total haemoglobin in the new-born lamb disappears from the circulation soon after birth. It would appear that the breakdown of haemoglobin is designed to give to the lamb a reserve of iron against the very real possibility of deficiency during the suckling period.

Alterations in the Thoracic Circulation

The changes in the circulatory system at birth have hitherto been the monopoly of the anatomist, and little attention has been paid to the physiological mechanism. The desiderata of foetal and post-natal circulation are the most efficient short-circuiting of the lungs before birth, and the least possible short-circuiting *immediately* after birth. The provision of the greatest possible supply to the tissues which require oxygen most (notably the brain) is another factor in the foetal economy. How efficiently the ideal is attained has been studied by direct observation, using thorotrast to make the blood circulating in the vessels opaque to X-rays. Blood from the superior vena cava goes straight through the auricle to the right ventricle, and thence *via* the pulmonary artery and ductus arteriosus to the aorta below the brachiocephalic trunk. It is therefore directed to the posterior parts of the body and about two-thirds of the flow passes to the umbilical vessels for re-oxygenation in the placenta. Some small portion may travel through the lungs, but the greater part follows the easier channel through the ductus arteriosus as described. Blood from the inferior vena cava, which is in great part fresh from oxygenation in the placental bed, passes across the right auricle and through the foramen ovale to the left side of the heart. That there is some mixing in the right auricle is inevitable, but all the evidence suggests that it is of slight importance. The blood from the left side of the heart passes to the aortic arch and brachiocephalic trunk, and hence the oxygen supply to the head and brain is the best in the foetal body.

The cicatrised remnant, which constitutes the ductus arteriosus as it is usually seen by the anatomist, gives but a poor idea of the importance of the duct in foetal life, when the lumen is as large as that of the dorsal aorta. Within four minutes of birth, however, it is almost completely closed, and Barcroft

* Barcroft, J. (1941.) Four Phases of Birth. *Lancet*, July 26th, pp. 91-95. (An abstract of the Sharpey-Schafer lecture given at the University of Edinburgh on February 28th.)

stresses that the contraction of its lumen is a vasomotor reaction, and not primarily a cicatrisation, the formation of connective tissue supervening some considerable time after birth. That the closure of the foramen ovale falls in the same category is shown by the fact that the oxygenation of the carotid blood (and hence of that on the left side of the heart) is complete in a similar short space of time. The saturation of the blood would not be complete if some of it had been derived from the right auricle through a patent foramen. The time relation of the closing of these two foetal channels has been studied in only one experiment, in which the foramen ovale appeared to close slightly earlier than the ductus arteriosus.

The First Breath

The birth of reflex movement in the sheep foetus may be said to occur at the 34th day when, if the area below the eye is sharply tapped, the head is turned to the side struck. By the 40th day the reflex is more easily elicited, a larger area of skin is sensitive, and the response consists of a rhythmic series of spasms each of which appears somewhat like an inspiratory movement. The muscular efforts are so widespread by the 49th day that a strong stimulus gives rise to movement of the body and limbs strikingly similar to that made by the new-born lamb in its efforts to rise to its feet, followed by well-defined respiratory movements. The adult relation of respiratory reflexes to asphyxia is not in evidence at this time, however, for deprivation of the oxygen supply to the foetus depresses rather than stimulates the respiratory efforts.

Between the 50th and 60th days the foetus seems to lose the capacity for rhythmic movement. This loss is merely apparent, for the earlier type of movement can be restored by asphyxia, by exposure to the air, or by appropriate surgical section of the brain stem; in other words, by the removal of the influence of higher inhibitory centres which have come into play at this time. These higher centres are more easily rendered inactive by asphyxia than those involved in the production of reflex respiratory movements, so that a fall in oxygen supply produces the same effect as in the adult—enhanced respiratory activity.

The nerve balance of the foetus at the end of gestation is therefore on the one hand made up of the inhibitory centres tending to produce quiescence, and on the other of potential sensory stimuli from all over the body, tending to bring into play the general reflex mechanisms, including respiration. At birth the inhibitory centres are paralysed by the abolition of the placental circulation, and the general sensory impulses from the environment, together with accidental stimuli from the nose and mouth, result in respiratory movement—the first breath.

J. B. Brooksby.

The Council on Pharmacy and Chemistry of the American Medical Association has decided to recognise the name stilboestrol as the common non-proprietary designation of the parent substance 4:4′-dihydroxystilbene, and the name diethylstilboestrol as the common non-proprietary designation for its diethyl derivative.

ABSTRACTS

[THE BACTERIAL FLORA AND DISINFECTION OF TEAT CUPS. Hay, J. R. (1941.) *Amer. J. vet. Res.* **2**. 297.]

Hay conducted experiments in a herd of 65 animals which were milked three times daily in a modern stanchion type milking machine.

The herd had been previously tested by the blood-plate method, after which all animals excreting mastitis organisms were placed at the end of the milking line. Further tests over a six months period revealed a steady increase in the number of infected animals.

It was, therefore, thought advisable to conduct a thorough bacteriological examination of the teat cups and to find the best way of washing and sterilising them.

The rear quarters, tail and udder of each animal were washed with warm water before each milking. The udder was then cleansed with a chlorine solution containing 50 parts per million of available chlorine and the fore milk from each quarter tested by strip-cup before the teat cups were applied.

Three method of treating the teat cups were compared.

1. Dipping in a chlorine solution of 50 parts per million of available chlorine between the milking of each animal.

2. Dipping into clear water to remove organic material, followed by method 1.

3. Thorough steaming with live steam, followed by method 1.

The first method was used on the farm as a routine procedure; the second was used to maintain the strength of the chlorine solution, the water being changed after every fifth animal, the original chlorine solution being retained throughout. In the third method steam units were connected with the dairy boiler, and were directly attached to the milking units. Steam under pressure was forced for 30 seconds into the cups, which were then rinsed in chlorine solution.

Results of the bacteriological findings are shown in a series of tables, α prime and haemolytic streptococci being found.

Briefly, it was found in method 1 that as the strength of the chlorine solution deteriorated, the number of colonies increased and at the end of milking were too numerous to count. The constant rinsing of the cups and consequent presence of organic material in the solution may explain its weakening.

In method 2 it was shown that by rinsing first in clean water most of the milk particles were removed and the chlorine solution was able to maintain its strength.

The bacterial counts were lower than in method 1, although the α and α prime streptococci were still present.

Method 3 produced a very much reduced total count. No α prime streptococci were isolated.

From the data obtained the author suggests that untreated teat cups constitute an important factor in the spread of bovine mastitis and recommends sterilisation by steam as the most successful of the three methods tried. Where steam is not available the second method could be used. H. F. L.

[**I.—TREATMENT OF SCABIES: USE OF SULPHUR LATHER TABLETS.** Carter, Dorothy L. (1941.) *Brit. med. J.* No. 4211. September 20th. 401.
II.—SCABIES TREATED BY A BENZYL BENZOATE EMULSION. Mackenzie, I. F. (1941.) *Brit. med. J.* No. 4211. September 20th. 403.]

I.—Dr. Carter comments on the great increase in the incidence of scabies and stresses the importance of the supervision and treatment of contacts in the control of the disease. She has used a modification of the sulphur soap method of treatment described by Nolan (*Arch. Derm. Syph.*, **36,** 846). The soap used by Nolan contained 18 per cent. sulphur and 4 grammes of the soap were found sufficient to cover the body with a lather, whereas 85 grammes of sulphur ointment were commonly used in the inunction treatment. The equivalent of sulphur was estimated as 0·72 and 12·8 grammes in the two methods respectively. There was, therefore, less likelihood of sulphur dermatitis following the treatment with sulphur soap. Carter used a tablet containing 0·72 gramme sulphur incorporated with a lathering agent the nature of which was not specified. Twenty-nine cases were treated and regarded as cured in from three to seven days. [The criteria of cure are not defined and it is to be doubted if accurate diagnosis of cure can be made so soon after treatment.—Abstractor.]

The procedure adopted was that after a hot bath the children were lathered all over with the tablet and the lather allowed to dry. This took about five minutes in a warm bathroom. Two or three further applications were made on successive days; latterly, only three treatments in all were used. Finally, the author made a comparison with other treatments by discussing the disadvantages of the latter.

II.—Mackenzie reports the result of treating 100 cases with a benzyl benzoate emulsion ("Proscabin" Bayer) and comparing with 100 cases treated earlier by the sulphur inunction method. The procedure was for the patient to have a hot bath, the body being well lathered with soap, scrubbed and then dried. The proscabin was then brushed on the whole body surface from neck to toes, the parts badly affected receiving a second painting as soon as the first had dried. Bath and painting were repeated on the second day and clean underwear used. Crusted or pustular areas of secondary infection were treated with 1 per cent. ammoniated mercury after completion of the proscabin treatment. Under this procedure children were examined on the fifth day and, if a second course was found necessary, the child might be passed as fit for school by the ninth day.

Of the group treated, 67 per cent. needed one course only; 29 per cent. two courses and 4 per cent. three courses. Seventeen of the 100 cases treated were also given sulphur inunction of resistant areas after the proscabin treatment. It is assumed that a second course of the proscabin treatment might have cured a number of these cases without the assistance of sulphur ointment. In the series treated by inunction, only 13 per cent. were fit to attend school after one week's treatment and 15 per cent. were still uncured four weeks after diagnosis.

Mackenzie quotes Gray, 1933 (Price's "Textbook of Medicine," p. 1406) as stating the incubation period of the ova to be three to three and a half days. P. A. Buxton, however, in the same issue of the *British Medical Journal*, quotes the duration of the egg stage as 100 hours or possibly even longer.

[Insufficient attention appears to have been paid by both writers to the appropriate timing of successive treatments, as unless the preparations used are known to be ovicidal it is necessary for the second application to be made *after* the latest possible period of emergence of larvae from unkilled ova but *before* the earliest possible development of larvae (hatched from unkilled eggs) into egg-laying females. The selection of the optimum time for the second treatment is essential for complete cure of the infected and this, according to the data recorded by P. A. Buxton (*loc. cit.*) for *Sarcoptes scabei* var. *hominis*, would appear to be between the fifth and seventh days. Theoretically, if external reinfection is excluded cure should be completed by the use of the correctly timed second treatment which would kill all larvae hatching from eggs surviving the first treatment, before they could develop to reproductive maturity. —Abstractor.]

In discussing the same subject in the correspondence columns of the *British Medical Journal* for November 8th, K. Mellanby (p. 669) draws attention to the necessity of cure satisfying both entomological and clinical standards. He states that he has found mites alive after treatments at reputable centres with many different methods, including the benzyl benzoate treatment.

J. S. S.

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[**NOTE ON VENTILATION, TEMPERATURE, AND HUMIDITY IN PIGGERIES AND OTHER FARM BUILDINGS.** Deighton, T. (1940.) *Emp. J. exp. Agric.* **8.** 319-322. (1 table, 7 refs.).]

This short paper might well be read by all who are concerned with the housing of pigs in this country.

The new Scandinavian piggery erected at the University Farm, Cambridge, showed the not uncommon defects of being cold in use, damp, and not of an even temperature. "Such troubles appear to arise mainly from the unjustifiable assumption that since Britain is so much milder than Scandinavia, it is unnecessary to pay much attention to heat conservation in designing these structures. That this is not so follows from the fact that whereas a difference of 12° F. should be maintained between outside and inside in average winter conditions here, the corresponding figure for Denmark is only 18° F. and that for Sweden 22° F. The disparity is smaller in severe weather. Now it is safe to say that the heat-retaining properties of a structure, such as the one mentioned, which is built with 9-inch brick walls and has a lightly insulated roof, cannot exceed about one-quarter of those of a Swedish piggery with 18 inches of ashes beneath the floor, 16-inch cavity walls filled with ashes and provided with air flues within their structure, and furnished with a loft, used for storage, with strong log floor whose seams are caulked with puddled clay. Consequently the chilly conditions are not to be wondered at."

An investigation was therefore made of the temperature of the piggery in different climatic conditions. The usual allowances were made for heat-loss by air infiltration through cracks (dependent on wind force), heat-transmission loss through the fabric of the structure and heat-gain from all sources (including the pigs) within and without the structure; in addition two other sources of heat-loss were considered *viz.*, the passage of air from low wall apertures

up to and through the ridge ventilators, and the end to end flow of air through the ridges of the roof (a factor which was increased by the conformation of its roof). With these data it was found possible to calculate almost exactly the temperature observed under a given set of conditions.

It is therefore pointed out that it is perfectly feasible to estimate the whole behaviour of a building before it is erected. The computations are standard ones which have been found to be entirely satisfactory by heating and ventilation engineers both here and in the U.S.A. It is important not to make what would appear to be slight changes in design without taking full account of their effect upon heat-conservation. The omission of an insulating layer at some apparently unimportant point might be quite sufficient to jeopardise the whole system.

A. N. W.

IN PARLIAMENT

The following are among the questions and answers recorded in the House of Commons prior to the shortened Christmas Recess:—

Agriculture: Post-War Plans

Mr. Snadden asked the Minister of Agriculture whether it is the intention of the Government to consult representative organisations before formulating plans for post-war agriculture, or whether such organisations will be consulted after the Government have adopted plans?

Mr. Hudson: Consultation with representative organisations will take place before detailed post-war plans for agriculture are adopted by the Government.

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Feeding-stuffs

Sir W. Smithers asked the Minister of Agriculture whether he will include in the next leaflet issued by his Ministry recommendations as to the daily ration required for dairy cows, in oats, bran and hay, when this is the only fodder available; and can he now state what they are?

Mr. Hudson: The Ministry's "Growmore" Leaflet No. 80—of which I am sending my hon. Friend a copy—contains such information. A ration consisting of 21 lb. medium quality hay, 4 lb. oats and 4 lb. bran, would normally be sufficient for a cow giving 2 gallons of milk.

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Tuberculosis

Sir E. Graham-Little asked the Minister of Health whether he has any further information as to the causes of the rise in the mortality from tuberculosis during the past two years; and whether he will consider the possibility that, inasmuch as medical statisticians are agreed that increased incidence of tuberculosis is an indication of lowering of nutrition, one of the factors in this rise may be the negligible nutritive value of the nation's bread as at present supplied?

Mr. E. Brown: No, Sir. The causes of the increase in tuberculosis are at present the subject of a special inquiry by the Medical Research Council. This inquiry will have regard to all relevant factors.

The list of successful candidates R.C.V.S. Membership Examination, December, 1941, will be concluded in our next issue, the completed results in respect of the Liverpool and London centres having reached us as we go to press.

NOTES AND NEWS

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events

Jan. 20th.—R.C.V.S. Committee Meetings, Royal Station Hotel, York.

Jan. 21st.—10 a.m., Registration Committee, R.C.V.S., Royal Station Hotel, York.

Jan. 21st.—2 p.m., Council Meeting, R.C.V.S., Royal Station Hotel, York.

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PERSONAL

Birth.—At Liverpool, to Peggy, wife of Roy Setterfield, B.V.Sc., M.R.C.V.S., of Northallerton, a son.

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Marriages.—Dunbar—Gaud.—At Stafford, on December 20th, 1941, Gordon M. Dunbar, M.R.C.V.S., Eccleshall, Staffs, son of the late William Angus Dunbar and Mrs. B. Dunbar, of Glasgow, to Pamela Elwes Gaud, daughter of Mr. and Mrs. P. A. Gaud, West Croft, Wadebridge, Cornwall.

Makinson—Kemp.—On December 6th, at St. Columba's, Pont Street, Chelsea, John B. Makinson, M.R.C.V.S., to Jean Mary Kemp, M.R.C.V.S.

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Silver Wedding

Campbell—Moore.—At Croft Villa, Rutherglen, on January 3rd, 1917, by the Rev. Robert Turnbull, Captain Dorald Campbell, A.V.C., to Rebecca Irvine, second daughter of Mr. and Mrs. George Moore, Croft Villa, Rutherglen.

Present address: Cruachan, 80, Hamilton Road, Rutherglen.

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R.C.V.S. OBITUARY

The Late Mr. E. J. Thorburn, M.R.C.V.S.

Mr. Edwin James Thorburn, of Crewkerne, whose death we recorded with much regret in our last issue, was one of the foremost veterinary surgeons in the West of England, with an extensive practice in Somerset, Dorset and Devon. In an appreciation, *Pulman's Weekly News* (Yeovil) observes that Mr. Thorburn's death has removed a valued townsman and one whose work and disposition had made him a wide circle of friends.

The notice proceeds: "Mr. Thorburn came to Crewkerne from Okehampton in 1908, succeeding to the practice carried on by the late Mr. T. E. Baker. In recent years he has been in partnership with his son-in-law, Mr. Cyril Wilkins. He had been in failing health for some time, and had undergone an operation in Crewkerne Hospital.

"Mr. Thorburn had taken an active part in town affairs, and in many directions he had given useful service. In the days of the old Crewkerne Horse Show he assisted in the organisation and was hon. veterinary surgeon. He was one of the founders of the Crewkerne (West Street) Bowling Club, and continued his interest in the game as long as his health permitted. He had held numerous offices in the club, including those of the President, Vice-President and Captain. He was for many years a regular match player. He had served for many years as a sidesman of the Parish Church, had also been a member of the Parochial Church Council, and had taken a great interest in Church affairs generally. He was a Past Master of the 'Parrett and Axe' Lodge of Freemasons.

"Mr. Thorburn is survived by his wife, one daughter (Mrs. Wilkins), and a son, Mr. Tim Thorburn, who is

on a plantation in Nyasaland, East Africa. To them the sympathy of numerous friends and acquaintances is extended in their bereavement."

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"PENCIL" TORCHES AND BATTERIES

Following an enquiry addressed b us to Messrs. Arnold & Sons, of Standard Works, Lawrence Road, Tottenham, N.15, we wish to inform our readers that the firm are in a position to supply torches and dry batteries, especially the "pencil" torches and batteries, the sale of which is now confined to members of the medical and veterinary professions. These are not procurable from any retail shop as they used to be before the war, and there are some patterns to-day that are unobtainable, but if enquiries are forwarded to Messrs. Arnold & Sons they will do their best to execute the orders.

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MILITARY CROSS FOR VETERINARIAN'S SON

Immediate awards made by General Sir Claude Auchinleck for conspicuous gallantry during the fighting in Libya include the Military Cross to Lieutenant W. M. Jackson, Royal Artillery, only son of Mr. and Mrs. J. R. Jackson, Fort View, Coleraine. Mr. Jackson is a Northern Ireland veterinary surgeon well known in the dog world.

Lieutenant Jackson joined the R.A. in the spring of 1939, and has been in the Middle East since August of last year. He is 23 years of age and is renowned as a Rugby footballer. He got his blue in 1938 at Oxford and has played also for Harlequins and North of Ireland.

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ROYAL ARMY VETERINARY CORPS

The following announcements are made in recent issues of *The London Gazette*:—

George Frederick Kershaw (216711) to be Lt., November 24th, 1941.

Maj. W. H. Thomas (4656) having attained the age limit of liability to recall ceases to belong to the Reserve of Officers, December 17th, 1941.

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ROYAL SOCIETY MEDALS

The King has approved the recommendations made by the Council of the Royal Society for the award of the two Royal Medals to Professor Arthur Milne, of Oxford, for his researches on the atmospheres of the earth and the sun, on the internal constitution of the stars, and on the theory of relativity, and to Professor E. L. Kennaway, of London University, for his investigations on the production of cancer by synthetic substances.

The following awards of medals have been made by the President and Council of the Royal Society:—

The Copley Medal to Sir Thomas Lewis for his experimental researches in the clinic and the laboratory on the heart and circulation and their disorders.

The Davy Medal to Dr. H. D. Dakin, of New York, for his work as a pioneer in biochemical research, and especially because of his fundamental contributions to the study of intermediate metabolism.

The Hughes Medal to Professor N. F. Mott, of Bristol, for his fertile application of the principles of the quantum theory to many branches of physics, especially in the fields of nuclear and collision theory, in the history of metals, and in the theory of photographic emulsions.

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LEGAL NOTES

Stores Not Isolated.—A warning to farmers that the Ministry of Agriculture's regulations must be strictly observed, was made by the Justices at York, when William Robson (47), Moor Monkton, was fined £7 10s. for failing to isolate 15 Irish store cattle, in contravention of the Diseases of Animals (Landing from Eire, Northern Ireland and the Isle of Man) Amendment Order, 1941.

It was stated that the cattle were in a field adjoining one in which there were 25 to 40 sheep.

Supt. Macdonald described the offence as serious, because the authorities had recently begun to permit the import of cattle to this country from Eire after the outbreak of foot-and-mouth disease there. Disregard of the isolation regulations might seriously offset the food position.

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MINISTRY OF AGRICULTURE NEWS SERVICE

Better Management of Farms

Government Policy on Increased Production.—As a corollary to the ploughing-up policy the Government are to take action to improve the general management of farms under the new conditions.

Announcing this at a mass meeting of farmers at Preston, the Minister of Agriculture pointed out that agriculture had been in failing health for many years. It had been undergoing in the last 18 months a rather drastic surgical treatment and he had no use for an operation if he had a dead patient at the end of it. Ploughing, draining, liming, the use of artificials, scrub clearing and re-seeding had, however, made agriculture fighting fit for the first time in many years. But there was still much ground to recover.

The Minister went on to describe the system of grading farms into categories A, B and C, emphasising that the grading related to management only. It was a measure of good or bad production in terms of the resources at a farmer's disposal and the use he made of them. Few farms were not so productive, even on the best land, that they could not be made better.

The task in which Mr. Hudson sought the industry's co-operation was the raising of "B" farmers up to "A" standards and the "C" farmer to at least the "B" category. Measures suggested by the Minister to increase productivity included timely and thorough cultivations, liming where necessary, using suitable fertilisers and the best crop varieties, seed dressing, proper rotations, the use of the clover ley, controlling weeds and the proper use of dung.

Temporary Leys.—Another big development forecast by Mr. Hudson was an extension of the ley system. Much of the land now under the plough will, in the next two years, have to be seeded down to temporary leys of varying durations—one, two or three years. If the leys are properly established they will need livestock—and especially sheep—to graze them. The sheep population has fallen too far, many farmers having been unduly apprehensive last year that they would be short of keep. Mr. Hudson added, however, "I must make it clear beyond doubt that we must maintain our acreage of land under crops over and above any land that for purposes of restoring fertility has to be seeded down each year. The problem we have to tackle is how to consolidate our gains and at the same time get what further increase in food production is feasible."

This is how the Minister described the farmer's part in the war:—

> "We shall have to move heaven and earth to win this war—but it is no use moving heaven if we do not move earth as well!"

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Rations for Chick Rearing.—Provision of supplementary rations for rearing chicks for replacement purposes was a further announcement made by Mr. Hudson. This provision falls into two parts. In the first place, all poultry farmers, other than domestic poultry keepers, will be allowed chick food rations, including some grain, to enable them to rear pullets during the period January to April. The allowance will be at the rate of 1 cwt. for each 150 birds, including old and young birds, owned by the farmer in June, 1939—an allowance which should suffice for the rearing of about one-third of the numbers of pullets reared before the war. The supplementary ration will cease in April, as the summer scale of rations (half as much again as the winter rate) will come into operation in May.

Secondly, breeders with sound breeding stock will be allowed rations for rearing pullets for sale, especially to domestic poultry keepers who are not expected to purchase replacements at less than eight weeks old. These rations will be at the rate of 1 cwt. for each twelve pullets reared, and the breeder will have to comply with certain conditions, such as a maximum scale of prices for pullets.

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This Feed is Not Rationed

Valuable Supplement for Pigs and Poultry.—Plant for the conversion of household swill into a concentrate has been installed by local authorities in various parts of the country. Their product—a valuable non-rationed feeding-stuff for pigs and poultry—needs no boiling, keeps longer than raw swill and can be easily transported in its concentrated "pudding" form. It replaces half the meal in poultry rations and up to two-thirds in the pigs' rations. Regular users of concentrated swill are demonstrating that their stock thrive on it.

This new service to farmers now operates from the Boroughs of Birkenhead, Bolton, Bradford, Brighton, Bristol, Derby, East Ham, Leeds, Leicester, Letchworth, Luton, Middlesbrough, Nelson, Newcastle-upon-Tyne, Norwich, Nottingham, Nuneaton, Oxford, Plymouth, Preston, Reigate, Rochdale, Sheffield, Southend, Stanwell (near Staines), Stoke-on-Trent, Tottenham, Wolverhampton and Woolwich. At Letchworth and Stanwell the plants are operated by the Letchworth Bacon Company and Smithfield Animal Products, Ltd. In other towns applications for supplies should be made to the local authority. It is expected that other plants will shortly be installed at Camberwell, Croydon, Liverpool, Reading, Wembley and Westminster.

Sixteen thousand tons of raw swill were collected by local authorities in September. Much of it was processed. In total it is the equivalent of half the ration for 120,000 pigs and although the pig population has been reduced substantially from the pre-war figure of 3½ million, there are still very many more pigs than the number required to absorb all the available swill, both raw and processed.

Poultry, too, have to be accounted for. Concentrated kitchen waste is especially suited to them. It is important, therefore, that this chain of processing plants should be developed as rapidly as possible. It has a vital bearing on the maintenance of herds and flocks and every plant should be supported with a maximum of orders from farmers in its locality.

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Sugar Beet Silage

Satisfactory When Made in Clamps.—On a farm with a good acreage of sugar beet the tops can usually be fed "fresh" continuously through the autumn and sometimes into January. "Fresh" tops can be fed off by sheep and sows, or it can be carted to cattle and other stock on pasture or to bullocks in yards. The fullest use should be made of "fresh" tops so as to economise in other feeding-stuffs, but if it is evident that the supply is too great to feed fresh, the surplus should be ensiled for later use. The probable surplus can be roughly estimated on the basis of eight tons of tops from ten tons of washed beet; and consumption may be taken to be one acre of tops per week for each 90-100 ewes, ½ acre per week for every 30 cows, and other stock in proportion.

An ordinary constructional silo or movable container is, of course, suitable, but, with proper care, satisfactory beet-top silage can be made in clamps. A dry, well-drained site is essential. A convenient width is about 14 ft. and the length may be estimated as 3-4 ft. for each acre of tops. It is important that the beet tops shall be as clean and free from soil as possible; they should be ensiled within 10-14 days of topping. The construction of the silo and advice on the feeding of beet-top silage are features of "Growmore" Leaflet No. 40, "Ensiling Sugar-Beet Tops," obtainable free and post free from the Ministry of Agriculture, Lindum Hotel, St. Annes-on-Sea, Lancs.

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Household Swill.—Householders can do much to improve the value of the kitchen-waste service to pigs and poultry keepers by being a little more selective in the material set aside for collection. The swill is treated in bulk and it is not practicable to carry out close sorting at the waste food depots. Any foreign matter such as milk-bottle caps or metal objects, or glass, should be removed by the housewife before the food scraps are placed in the receptacle used for the house-to-house collection. Tea leaves can form part of the kitchen waste, but all inedible or dangerous waste material should be kept out. One farmer's discoveries at feeding-time included a kitchen knife, a penknife, and—a shilling! His neighbour did even better. He found a half-crown in the processed swill. It made the price of the kitchen waste more attractive, but was not conducive to egg production!

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The "One-Man Poultry Breeder."—An ex-Serviceman who took a small poultry holding in Lancashire after the last war has described how he is carrying on in this one. From a humble beginning he developed his business until his laying stock varied from 850 to 1,000 birds and he was selling 400 pullets each year. He was a "one-man poultry keeper" and in spite of present difficulties he is now sticking to his job. He was hard-hit when feeding-stuffs were first restricted, but in spite of subsequent cuts in supplies he manages to maintain 300 laying birds and 300 pullets on his monthly feed allowance of 7 cwt. How?

From his local authority he gets a "fair supply" of processed household waste to which he adds 10 per cent. of meat-and-bone meal, meat meal or fishmongers' offals. The last-named is unrationed. The birds' rations average about 75 per cent. of the household swill in its processed, or "pudding" form. He often dries off the "pudding" with oat dust or oat husk meal. The birds are healthy, but they do not give quite such a high egg yield as their owner would like.

Many other egg producers use the processed swill, others base their mash on steam-cooked potatoes and other vegetables. Fish shops and fish and vegetable markets provide useful scraps for the men who are struggling to maintain their flocks.

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Caution Needed when Buying Unrationed Feeding Stuffs.—In these days of short supplies of rationed feeding stuffs, particularly for pigs, poultry and rabbits, producers are looking round for unrationed commodities with which to supplement what they can buy with their coupons. Some are good value. They include locally produced kitchen waste and chat potatoes. Others are definitely inferior and a bad bargain. Examples of the latter kind are blitz-damaged wheat that cannot be reconditioned, salvaged coffee beans and mixtures described simply as "unrationed poultry food," of which a principal ingredient may be sawdust. If it is cheap it is probably nasty, but not all of these offers even have the merit of cheapness. "Cash with Order" offers should, in particular, be treated with caution.

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Faulty Silo Roofing Causes Wastage.—Farmers who have made silage this year are advised to inspect their silos, making sure that they are weather-proof. Much silage was wasted last year through faulty roofing. The Silage Officer to the Lindsey War Agricultural Committee reports that when inspecting silos recently he found that on nine farms out of ten the silos were not properly finished off and rain water had already caused some spoiling. The usual covering was soil with, here and there, a rough thatch.

It should be remembered, however, that after the silo has been sealed and weighted, it sinks down well below the top of the silo walls. The rain water drains down to the

walls, collects there and, soaking through, spoils up to one foot of silage on the whole of the outside edge. As a precaution (when the silage has sunk to its permanent level) the top ring of the silo should be removed and the silo roughly thatched with a good eave to ensure that the rain water falls clear. This method is satisfactory with the wire, asbestos or wooden types of silo. In the case of concrete silos it is simpler, when the silage has finished sinking, to fill up the space with straw, building it up well above the top of the silo walls, again ensuring that rain water drains clear of the silo.

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EMACIATED COWS

Commenting on the above matter in its issue of December 11th, *The Meat Trades Journal* observes: "In June last the Minister of Agriculture decided that unthrifty dairy cows should be culled from the herds and sent to collecting centres for slaughter so that the imported feeding-stuffs would be used to the best advantage from the national point of view. We think it was universally agreed that the idea was sound and there would have been little or no fault to find if the Minister's idea was carried out in the proper manner. Unfortunately, the War Agricultural Committees have not carried out in detail his obvious intention. Had the animals been collected in the manner originally intended they would have been marked and, once taken to the collecting centre, could not have returned to the farm. They would have gone through as either graded animals or as animals unfit for grading.

"In some parts of the country, however, the War Agricultural Committees have not had the herds inspected, and people acting as dealers have (we understand) been going round the farms buying up the emaciated, and frequently diseased, animals at their true value and then taking them to the centres for grading. If unsuccessful, they have taken them to another centre and then another until they get what they want. If these committees did their duty in the proper way the country's money could not be filched in this manner.

"Another reason why attention needs to be given to this matter is that these emaciated cows are killed in the same slaughterhouses as the good stock. An animal which on opening up is likely to be found to be stinking with tuberculosis should not be slaughtered in the same place as animals which will be used for human food."

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MELANIN

"The first question that arises in any anomaly of pigmentation is the nature of the colouring matter responsible," states *The Lancet*, and continues: "Sometimes this point can be decided on the history—as with tattoo-marks, tar particles after road accidents and pigmented naevi—but there are cases in which a biopsy is the only certain means of deciding between the presence of melanin and blood-pigment. Blood-pigment abounds in haemosiderin, which is an iron-containing amorphous substance, easily identified by the potassium-ferrocyanide or ammonium sulphide stains on the skin section; melanin, on the other hand, occurs in the skin in the form of microscopic granules, varying in tint from light brown to black, and contains no iron. In spite of much chemical investigation its exact formula is unknown, but the present view that it is related to tyrosine and adrenaline is probably not wide of the mark. We know that in certain lower animals melanins are produced by the action of specific oxidases on tyrosine, and it was this fact that inspired Bruno Bloch, in his researches with dopa (dihydroxyphenylalanine). He regarded this compound as almost identical with the pro-pigment which is eventually converted by oxidases to melanin in human skin; however, dopa has never yet been isolated from that source. Although complete confirmation is lacking there is a good deal of evidence to support his views, and his work is still the keystone of most of the more recent investigations. Prof. E. Meirowsky, in a recent summary,[1] quotes investigations which cover a wide field including most of the animal kingdom, from fishes, reptiles and amphibians to mammals and the human species. The appearance of melanin in the course of a pathological condition is often significant. That melanin is formed in the epidermis itself is no longer disputed, but the central problem to-day is the origin and significance of the dendritic cells which contain it. Meirowsky concludes that they are not neurogenic in origin but modified epithelial cells. Bloch has demonstrated that cells which when stained with the usual reagents look like the ordinary cubic variety in the basal layer, assume a branched dendritis appearance when the dopa method is applied. Meirowsky is further convinced that melanin is produced not only in the dendritic cells but also independently in the cells of the malphigian layer. This conclusion, if correct, seems to support the view that the dendritic cells have other functions than the manufacture of pigment, and that they may have developed from the undifferentiated epidermis as a special system, much as the Langerhans cells develop from the ordinary cells of the pancreas. He regards the pigment in the corium as being a different variety from epidermal melanin and of unknown origin. While he does not regard dopa-produced pigment as genuine melanin, Meirowsky provides evidence that adrenaline or its oxidation products may be important as forerunners of melanin. Among the morphological as opposed to the chemical precursors of melanin there is a colourless pro-pigment in the cells of certain tissue-cultures grown in a medium containing only glucose and inorganic salts; its existence proves, he considers, that those cells which naturally produce melanin provide also their own pro-pigment. Whether the precursors are formed by the protoplasm or the nucleus of the cells concerned is still undecided, but Meirowsky maintains that wherever melanin is formed after irradiation of non-pigmented skin with a Finsen lamp it is preceded within the nucleus by an increase of the substance which is stained red by the Pappenheim-Unna reagent. In some instances, he says, all shades from the red substance to the very dark pigment can be demonstrated, and in precipitate melanogenesis sometimes the whole nucleus or the nucleoli are transformed into pigment."

(1) *Brit. J. Derm.*, July, 1940, p. 205.

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PITUITARY EXTRACTS AND THE VIRUS OF FOOT-AND-MOUTH DISEASE

Reporting on the effect on the virus of foot-and-mouth disease of certain chemical methods employed in their preparation, I. A. Galloway (*J. Hyg., Camb.* **39**, 597-614; Abst., *Vet. Bull.* xi. 596) records that as the injection of an imported pituitary extract into a cow, for the production of oestrus, had given rise to an outbreak of foot-and-mouth disease, a series of experiments was carried out to determine the likelihood of occurrence of virus in hypophyseal extracts prepared from infected animals. Tests carried out on guinea-pig pituitaries suggested that the infectivity of the gland was due to the blood contained in the structure. There was no evidence to suggest that the gland itself might be a site of multiplication of the virus, but the conditions of collection of the glands in the abattoir rendered it highly probable that the glands taken from diseased animals would be contaminated with virus.

For experiments on the effect of the usual biochemical procedures in preparation of pituitary extracts, cattle pituitaries were grossly contaminated with virus filtrates. These glands were treated in three ways: (1) Acetone desiccation in the cold-extraction with acetone, followed

by treatment with alcohol and ether, and drying over $CaCl_2$, all at 0° C. This method failed to inactivate the virus, and batches of such material were found to be infective up to 44 days. (2) Precipitation of crude prolactin by alkaline extraction, followed by repeated precipitation at *p*H 5·5 and separation of crude thyrotrophic hormone. The initial stage of alkaline extraction (*p*H 8·5) was withstood by the virus but reprecipitation twice only, at *p*H 5·5, removed the infectivity. Such extracts would not be likely to be infective, unless the virus were contained within cells and so protected against the unfavourable *p*H. High concentrations of certain salts might also favour virus survival. (3) Preparation of "crude whole extract" by repeated extraction of acetone-desiccated material with 60 per cent. alcohol at 18° to 20° C. The extraction with 60 per cent. alcohol at room temperature was viricidal, though the virus had previously been found to resist absolute alcohol at 0° C.

It is considered that probably the most efficient method of freeing a hormone preparation from virus is to adjust the *p*H of the medium to 4·5–5 for sufficient time to ensure uniformity throughout the solution, if this is possible without inactivating the hormone concerned.

CORRESPONDENCE

Letters to the Editor should reach the Office not later than by the first post on Monday morning for insertion in following Saturday's issue.

The views expressed in letters addressed to the Editor represent the personal views of the writer only and must not be taken as expressing the opinion or having received the approval of the N.V.M.A.

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BRITISH VETERINARY COLLEGES AND RESEARCH

To the Editor of the Veterinary Record

Sir,—All who are interested in veterinary education and the advancement of knowledge will, I am sure, agree heartily with the contention of the leading article in *The Veterinary Record* of December 6th, that "Research directed towards advancing knowledge in these special studies (on diseases of the nervous system) has been sadly neglected at the British veterinary colleges." The question "Why such work has not been undertaken long ago at the veterinary colleges," however, demands an answer.

As far as this College is concerned, the Edinburgh University authorities have repeatedly, during the past twenty years, made strenuous efforts to develop veterinary science, and though unable to obtain any funds from public sources, have provided facilities and opportunities for research and post-graduate training to young veterinary physiologists, who now occupy important posts in research and teaching. In addition, one Aleen Cust Scholarship and one Research Fellowship, awarded by this College to recent graduates, have been allocated to physiological research.

Had the provision of funds for such work at veterinary colleges been as liberal as it now is for the new Unit of Animal Physiology at Cambridge, there would have been no lack of competent veterinary workers in this field. But until funds of some magnitude are made available at veterinary colleges which, with the approval of the Governing Body, can be allocated by the principals to heads of departments for pure research to acquire knowledge, the colleges cannot be held responsible that rather special lines such as the above have not been taken up.

In no other country where livestock is of major importance has such a lack of appreciation been shown by Government of the necessity for adequate provision of staff and facilities at veterinary colleges; for research, and particularly in veterinary physiology.

Ever since taking up the principalship of this College, I have endeavoured to obtain a small provision of funds so that research by individual teachers, each in his own subject, could be encouraged within the College; for the advancement of knowledge and to give keen students an interest and an insight into the methods by which research is carried out and knowledge obtained.

My Board of Governors are in full sympathy, but no funds for this purpose have so far been secured, and it is obvious that until principals of colleges are placed in a position to give direct encouragement to such research, there must be great danger that the teaching will become stereotyped and behind the times. We are told that grants can be obtained if detailed schemes are submitted to the Agricultural Research Council. With considerable unavoidable delay due to the number of bodies by which such schemes have to be considered and approved, that is possible, but in the early stages such research must often be of a purely tentative or exploratory nature, which may never come to anything more, for which at that stage it would be impossible to submit an exact scheme. Yet, out of tentative research of this kind it can be said that many if not the majority of outstanding advances in scientific knowledge have been developed.

It is to be hoped that the grant of funds for research in animal physiology which has recently been made may be taken to indicate that the British Government now recognises that it is under an obligation to British stock-owners to make more adequate provision for such work, and that this applies not only to research, but to facilities for practical training also. For example, much has been said of the lack of training of veterinary practitioners of this country in the specialised technique of pregnancy diagnosis, but until Government realises that veterinary colleges must be provided with facilities, including farms, for such training, it is not fair that the colleges should be held to blame.

At this College it has only been possible to give a practical course of training in this technique through the generosity of the University authorities in placing the experimental herd of the Animal Genetics Institute at our disposal.

Though the prior claims of Edinburgh to financial assistance in such matters appear to have been ignored, the establishment of an adequately financed Unit of Animal Physiology at Cambridge must, however, be warmly welcomed. The increased facilities thus made available should give suitably trained young veterinarians the opportunity they have long sought to pursue research in veterinary physiology—which has been so lacking in this country, despite the efforts of pioneers, such as the late Sir Frederick Smith, Professor Crew and others, who, with extremely meagre or no support from Government, have done their utmost to foster such research.

Yours faithfully,
A. Olver,
Principal.

Royal (Dick) Veterinary College,
Edinburgh, 9.
December 20th, 1941.

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EXTRA-MURAL TEACHING

To the Editor of the Veterinary Record

Sir,—The Council has recently issued a questionnaire on the subject of extra-mural teaching to all members in practice in this country. Up to the present only 180 members have replied. May I ask through the medium of your columns that members who have not yet filled up the form should do so at once and send it to me in order that I may be able to submit a com-

plete report to the Council at its forthcoming meeting.

Yours faithfully,
FRED BULLOCK,
Secretary.

Royal College of Veterinary Surgeons,
18, Victoria Avenue,
Harrogate,
Yorks.

December 27th, 1941.

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RAISON D'ETRE FOR RESERVATION?

TO THE EDITOR OF THE VETERINARY RECORD

Sir,—One would like to ask the authorities controlling the destinies of the veterinary profession, why the whole profession is reserved from military service. One is aware, of course, that there is a considerable number of young MS.R.C.V.S.—and some not so young—in the Forces, and further that many more would like to join or rejoin in any capacity. The R.A.F. will take the physically fit under 33 years of age. Service in the Forces is therefore very limited, by virtue of one's being a veterinary surgeon and reserved, unless a waiver of reservation is obtained. There are hints and rumours of a State Veterinary Service and that this is the reason of reservation *en bloc* of the profession. If this is so, is it not an opportune moment for the authorities to declare a veterinary policy as a guide to the practising members of the profession?

A friend, desirous of doing a useful job of war work and being experienced in such matters, volunteered his assistance to a local authority in Gas Decontamination of Foodstuffs, such assistance to be unpaid. He was informed at a personal interview that as he was a veterinary surgeon and reserved for *potential duties as such*, his services could not be utilised—although his offer was much appreciated.

Personally I do not hold any brief for reservation—unless there is a very real reason for it—and feel that when so much unemployment exists in the profession such reason for official reluctance to use a veterinary surgeon in extraneous duties because he is reserved should be made known to members.

That unemployment does exist in the profession is unfortunately no rumour. Fairly recently I advertised for an assistant and had 47 replies from those newly-qualified and also from applicants with up to 12 years' experience. Quite a number of the younger applicants were willing to work for board and pocket money—rather a depressing admission after an expensive, scientific collegiate course of five years. I am sure other veterinary employers could relate similar experiences.

Even now one sees large numbers—relatively—of young men and women qualifying and one wonders how they will all be usefully employed as *veterinary surgeons*. One can only assume—in the absence of official information—that a State Veterinary Service is about to be put into operation and if so that the number of veterinary surgeons required to operate the Service is not yet available: hence reservation.

Until such time, however, what does the immediate future hold for the young graduate, who must be very much exercised in mind as to what his proper use to the State should be in these critical days?

The profession is willing to pull its weight in the national interest—but veterinary politics are not "as clear as daylight" to the rank and file.

I have the honour to be, Sir,
Your obedient servant,
J. COCHRANE-DYET.

Westminster Bank,
Melton Mowbray.
December 22nd, 1941.

P.S.—Since writing the above I have dined with a lady who informed me that her doctor had been called up—"but thank God Dougal's doctor is reserved." Dougal is a Scotch terrier and I am not his "doctor."—J. C.-D.

DISEASES OF ANIMALS ACTS, 1894 TO 1937, AND AGRICULTURE ACT, 1937 (PART IV).

Summary of Returns of Confirmed Outbreaks of Scheduled (Notifiable) Diseases

Period.	Anthrax.		Foot-and-Mouth Disease.		Parasitic§ Mange.		Sheep Scab.	Swine Fever.	
	Outbreaks confirmed.	Animals attacked.	Outbreaks confirmed.	Animals slaughtered as diseased or exposed to infection.	Outbreaks confirmed.	Animals attacked.	Outbreaks confirmed.	Outbreaks confirmed.	Swine slaughtered.
	No.	No.	No.	No.	No.	No.	No.	No.	No.
Period 16th to 30th Nov., 1941	8	8	—	—	—	—	19	28	12
Corresponding period in ...									
1940	30	39	27	2,997	—	—	16	223	144
1939	21	26	1	45	1	1	22	188	146
1938	36	36	7	1,106	—	—	29	90	99
Total 1st January to 30th Nov., 1941	370	439	260	26,808	17	51	188	1,042	510
Corresponding period in 1940	527	634	76	11,958	15	29	179	4,673	3,347
1939	666	757	86	10,942	33	73	246	2,963	2,247
1938	752	1,145	176	22,367	45	75	184	831	674

NOTE.—The figures for the current year are approximate only. §Excluding outbreaks in Army Horses.

Tuberculosis (Attested Herds) Schemes

The number of Attested Herds, *i.e.*, herds officially certified as free from tuberculosis as at November 30th, 1941, was as follows:—ENGLAND 3,886 ... WALES 9,171 ... SCOTLAND 3,301 ... TOTAL (GREAT BRITAIN) 16,358